

Title

The effects of aging on evoked otoacoustic emissions and efferent suppression of transient evoked otoacoustic emissions

Authors

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Abstract

There is still controversy regarding the effects of aging on the amplitude of evoked otoacoustic emissions (EOAEs), as well as on the efferent system measured by contralateral acoustic stimulation of EOAEs. The purpose of this study was to investigate EOAEs and efferent suppression (ES) with increasing age.

Seventy-one ears (20-79 years) were included in the study, 47 of which had normal hearing thresholds, and 24 ears had a sensorineural high-frequency hearing loss caused by presbycusis. The effects of aging on transient evoked (TEOAEs) and distortion product OAEs (DPOAEs), and on ES were evaluated using multiple regression and correlation coefficients.

EOAE amplitudes were more strongly correlated with age, than with pure-tone thresholds (PTTs). Moreover, the increase in the amount of variance explained by the regression model using these variables as predictors was larger for PTTs as compared to the variable age. Similar results were found for ES.

There might be an age-dependent decline in EOAEs and ES independent from the influence of deteriorating hearing thresholds although the latter superimpose on the effects of age. The relative contribution of age and hearing thresholds on EOAEs, as well as on ES is important for their interpretation in clinical settings.